

REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 1-3 have been amended to more particularly recite the present invention. Specifically, amended claim 1 recites that the surface tension of electrolyte is more than the surface free energy of electrode. Amended claim 2 recites that the surface tension of electrolyte is more than the surface free energy of the separator. Amended claim 3 recites that the surface tension of electrolyte is more than the surface free energy of electrode and more than the surface free energy of the separator. As described in the examples from the present specification, the surface energies of the electrodes can be 28 or 20 dynes/cm (page 40, lines 9-11), while the surface energies of the separators can be 20, 24, 27, 31 or 34 dynes/cm. Most of these values are less than the surface tension of the electrolyte (γ_l) (page 41, Table 2). New claims 25-27 are supported in the specification in the paragraph bridging pages 12 and 13.

Claims 2, 5 and 23 stand rejected under 35 USC § 102(b) as anticipated by WO 99/30381. Claims 1, 3, 4, 6-8, 12-22 and 24 stand rejected under 35 USC § 103 as unpatentable over WO 99/30381. Claims 9-11 stand rejected under 35 USC § 103 as

unpatetable over WO 99/30381 in combination with FR 2704099.

Insofar as these rejections may be applied against the amended and new claims, the Applicants respectfully traverse.

WO '381 and the present specification recognize that when a surface free energy of a solid, e.g., an electrode or a separator, exceeds a surface tension of a liquid, e.g., an electrolyte, the solid is wetted with the liquid (specification page 9, lines 7-11). Specifically, WO '381 states that "The relative surface energy between a liquid and a porous solid is very important in determining the wetting properties of the liquid....Therefore in order to effect complete and rapid wetting of the separator and electrode material of the battery, the surface energy of the liquid should be less than the surface energy of the solid material." (emphasis added) (see WO '381, page 2, lines 7-19.)

In contrast, the present inventors have discovered that when the surface energy of the liquid is more than the surface energy of the solid material, if the difference is less than 10 dynes/cm, an electrode reaction sufficiently proceeds (see specification, page 9, lines 15-20).

Thus, it is apparent that the cited reference teaches away from the presently claimed invention.

Claim 20 depends from claim 1 and recites that the solute must contain at least two compounds, one selected from the first listed group and the second selected from the second listed group. Thus, even if it were *prima facie* obvious to combine two compositions each of which is taught by the prior art, the references would nevertheless still fail to teach the features recited by the claims from which this claim depends.

With respect to claim 11, the Office Action asserts the use of a SO_2N group would have been obvious, based on the teachings of FR '099. However, Applicants respectfully disagree.

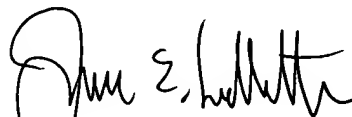
Applicants note that FR '099 discloses the use of $-\text{SO}_2\text{NH}$ (page 4, line 41 of the original French language document), not SO_2N . In contrast, claim 11 recites " $-\text{SO}_2\text{NR}-$ (R is an alkyl group of 1-8 carbon atoms)," and an alkyl group is significantly different from the simple hydrogen atom disclosed by the reference.

In light of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may be best resolved through a telephone communication, the Examiner is requested to telephone

the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James E. Ledbetter". The signature is stylized with a large initial "J" and a cursive "E".

James E. Ledbetter
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JEL/EPR/att

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